

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Apparatus for sensing information regarding a surface, comprising:

a first plurality of optical elements arranged to acquire two dimensional information about a surface;

a second plurality of optical elements arranged to acquire ~~topographical height~~ profile information about said surface;

said first plurality and said second plurality of optical elements being arranged to simultaneously provide said two dimensional information and said ~~topographical height~~ profile information to at least partially non-overlapping portions of a single sensor array;

a first plurality of illumination optical elements arranged to illuminate a first portion of said surface with illumination suitable for acquiring two dimensional information about said surface; and

a second plurality of illumination optical elements arranged to illuminate a second portion of said surface with illumination suitable for acquiring ~~topographical height~~ profile information about said surface;

wherein said second plurality of illumination optical elements comprises at least one light emitter arranged to illuminate a linear region on said surface from a direction generally perpendicular to said surface.

2. (currently amended) The apparatus claimed in claim 1, wherein said first plurality of optical elements is arranged to acquire said two dimensional information from a first portion

of said surface while said second plurality of optical elements acquires said ~~topographical~~height profile information from a second portion of said surface.

3. (Original) The apparatus claimed in claim 2, wherein said first portion of said surface and said second portion of said surface are at least partially non-overlapping.

4. (Original) The apparatus claimed in claim 3, wherein said first portion of said surface comprises a first elongated region of said surface, and said second portion of said surface comprises a second elongated region of said surface.

5. (Original) The apparatus claimed in claim 1, further comprising:
a displacer operative to provide mutual displacement between said surface and said first plurality of optical elements during acquisition of said two dimensional information.

6. (currently amended) The apparatus claimed in claim 5, wherein a first portion of said surface whereat two-dimensional information is acquired comprises a first elongated region of said surface, and a second portion of said surface whereat ~~topographical~~height profile information is acquired comprises a second elongated region of said surface at least partially non-overlapping with said first elongated region.

7. (currently amended) The apparatus claimed in claim 5, said displacer being further operative to provide mutual displacement between said surface and said second plurality of optical elements during acquisition of said ~~topographical~~height profile information.

8. (currently amended) The apparatus claimed in claim 1, wherein said first plurality of optical elements comprises an imaging lens shared with said second plurality of optical elements, said imaging lens receiving acquired two dimensional information and acquired ~~topographical~~height profile information.

9. (currently amended) The apparatus claimed in claim 8, wherein said imaging lens is operative to generate an image of a first portion of said surface on said sensor for acquiring two dimensional information corresponding to said first portion, and to generate an image of a line of illumination at a second portion of said surface for acquiring a ~~topographical~~ height profile information corresponding to said second portion.

10. (Canceled).

11. (Previously presented) The apparatus claimed in claim 1, wherein said first plurality of illumination optical elements comprises at least one light emitter arranged to provide illumination at least some illumination from within a first range of converging angles relative to a first axis, and additional illumination from within a second range of converging angles relative to said first axis.

12. (Original) The apparatus claimed in claim 11, wherein said at least one light emitter comprises a plurality of laser diodes.

13. (Original) The apparatus claimed in claim 12, wherein said illumination optical elements comprise a diffuser diffusing light from said at least one light emitter along a second axis generally perpendicular to said first axis.

14. (Original) The apparatus claimed in claim 13, wherein said diffuser comprises a lenticular array.

15. (Canceled).

16. (Previously Presented) The apparatus claimed in claim 1, wherein said at least one light emitter comprises at least one laser emitter emitting structured light.

17. (Original) The apparatus claimed in claim 1, wherein said first plurality of optical elements is arranged to view a first portion of said surface from a direction generally perpendicular to said surface.

18. (Original) The apparatus claimed in claim 17, wherein said second plurality of optical elements is arranged view a second portion of said surface from a direction angled with respect to said surface.

19. (Original) The apparatus claimed in claim 1, wherein said second plurality of optical elements is arranged view a second portion of said surface from a direction angled with respect to said surface.

20. (Original) The apparatus claimed in claim 18, wherein said first portion is illuminated by illumination provided at a plurality of angles relative to said surface.

21. (Original) The apparatus claimed in claim 18, wherein said second portion is illuminated by illumination that is provided from a direction generally normal to said surface.

22. (Original) The apparatus claimed in claim 2, wherein an optical path distance between said first portion and said single sensor array is equal to an optical path distance between said second portion and said single sensor array.

23. (currently amended) Apparatus for sensing information regarding a surface, comprising:

a first plurality of optical elements arranged to acquire two dimensional information about a surface; and

a second plurality of optical elements arranged to acquire ~~topographical height~~ profile information about said surface during acquisition of said two dimensional information,

said second plurality of optical elements comprising an illuminator illuminating a first portion of said surface from a direction being generally perpendicular to said surface.

24. (Original) The apparatus claimed in claim 23, wherein said first plurality of optical elements are arranged to acquire said two dimensional information from a direction being generally perpendicular to said surface.

25. (currently amended) The apparatus claimed in claim 24, wherein said second plurality of optical elements are arranged to acquire said ~~topographical~~ height profile information from a direction being generally nonperpendicular to said surface.

26. (currently amended) The apparatus claimed in claim 23, wherein said second plurality of optical elements are arranged to acquire said ~~topographical~~ height profile information from a direction being generally nonperpendicular to said surface.

27. (Original) The apparatus claimed in claim 23, further comprising a beam combiner, wherein:

said first plurality of optical elements and said beam combiner define a first optical path for viewing a first portion of said surface from a direction generally perpendicular thereto; and

said second plurality of optical elements and said beam combiner define a second optical path for viewing a second portion of said surface from a generally non-perpendicular angle.

28. (Original) The apparatus claimed in claim 27, further comprising:

at least one sensor sensing information about said surface; and

a displacer operative to displace said surface and said sensor relative to each other while said sensor is sensing information.

29. (Original) The apparatus claimed in claim 28, wherein said first portion and said second portion are generally non overlapping.

30. (currently amended) The apparatus claimed in claim 28, wherein said at least one sensor comprises a single sensor array operative to sense two-dimensional information corresponding to said first portion at a first location in said sensor array and to sense topographical height profile information corresponding to said second portion at a second location in said sensor array.

31. (Original) The apparatus claimed in claim 30, wherein said first location is generally non-overlapping with said second location.

Claims 32. – 44 (Withdrawn)